AF/3727
IFW

470AM [2681.3083.001]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	**Mark R. Johansen**
Serial No.	09/606,702
Filed:	June 29, 2000
For:	**Multiple Layer Polymeric Cap and Method of Making the Same**
Group Art Unit:	3727
Examiner:	Niki Marina Eloshway

Certificate of Mailing

Date of Deposit with U.S. Postal Service NOVEMBER 24, 2004. I hereby certify that this paper is being deposited with the United States Postal Service as first class mail under 37 CFR 1.8 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Shirley A. Langley

Shirley A. Langley

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPELLANT'S BRIEF

On September 24, 2004, appellant filed a Notice of Appeal of a final rejection of all pending claims only under the first paragraph of §112 as containing new matter which was made in only the Final Office Action of March 24, 2004 and an Advisory Office Action of August 3, 2004. A check in the amount of $340.00 is enclosed to cover the

requisite fee for filing this Brief. If any error has been made in calculating this fee, please charge any deficiency or credit any excess to our Deposit Account No. 50-0852.

Real Party in Interest

The real party in interest is the assignee of the applicant/inventor who assigned all of his right, title and interest in and to Walbro Corporation which subsequently assigned all of its right, title and interest in and to TI Group Automotive Systems, L.L.C., having a place of business at 12345 East Nine Mile Road, Warren, Michigan 48090-2001.

Related Appeals and Interferences

There are no other appeals and/or interferences known to applicant, his assignee and/or legal representatives which will directly affect or be directly affected by or have a bearing on the Board of Appeals decision in this appeal.

Status of Claims

Claims 23, 25, 26 and 28-36 were rejected only under the first paragraph of §112 as containing new matter only in the Final Office Action of March 24, 2004 and the Advisory Action of August 3, 2004. Independent claims 37 and 38 were added in a timely response to the Final Office Action and were refused entry even for the requested purpose of appeal in the Advisory Office Action of August 3, 2004.

Claims 1-22, 24 and 27 were withdrawn from consideration and cancelled without prejudice to the remaining claims and the filing of a divisional application directed to the subject matter thereof.

The application does not contain any other claims.

Status of Amendments

A timely First Response to the Final Office Action was filed within two months on May 24, 2004 and an Advisory Office Action was mailed on August 3, 2004 which rejected only under the first paragraph of §112 claims 23, 25, 26 and 28-36 as containing new matter and refused entry even for appeal of claims 37 and 38, thereby resulting in the status of the claims as set forth above.

Summary of the Invention

Background

Environmental regulations have required a dramatic reduction in the amount of hazardous hydrocarbon fuel vapors emitted by plastic fuel tanks of automotive vehicles. Vehicle fuel tanks manufactured with a single layer of plastic material such as high density polyethylene (HDPE) have an unacceptably high rate of permeation of fuel vapor therethrough. Such tanks are manufactured with at least one and usually several access holes which receive a fuel pump module, vent valve or other component within the fuel tank and each hole is covered by a cap sealed to the tank wall. Therefore, plastic fuel tanks are currently manufactured with a wall having multiple layers with a vapor barrier layer which reduces the amount of hydrocarbons released into the atmosphere by as much as 60 times over a vehicle fuel tank having a wall with in a single layer of HDPE plastic. Even these fuel tanks do not meet current emission regulations.

Summary

Applicant has discovered and believes they do not do so because of permeation of fuel vapors through the plastic caps and the seals between the caps and the multi-layer wall of the fuel tank. Therefore, applicant has developed a method of manufacturing plastic fuel tanks with both the wall and the cap having a vapor barrier layer and permanently heat welded and sealed together to permanently close, seal and provide a vapor barrier layer for an access opening through which a fuel pump module or other component was installed within the tank during manufacture thereof.

As shown in Figs. 2 and 3, a plastic fuel tank 10 with a multi-layer wall 11 with an access opening 54 closed and sealed by a multi-layer cap 50 is manufactured by both blow molding a molten generally tubular parison with a co-extruded wall having a vapor barrier layer 16 (Fig. 4) of ethylene vinyl alcohol (EVOH) between inner and outer layers 12, 14 of high density polyethylene in a first cavity 34 in closed die halves 30, 32 to provide the desired external shape of the fuel tank and in a second cavity 39 compression molding at least one cap 50 in the flash 36 from the portion of the parison pinched or trapped between die halves 30, 32 during mold closure and blow molding of the fuel tank.

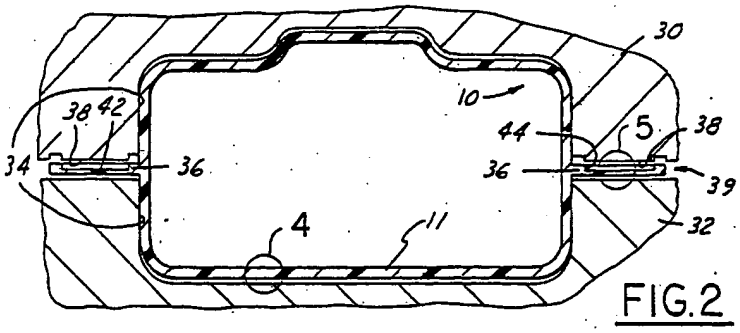

FIG.2

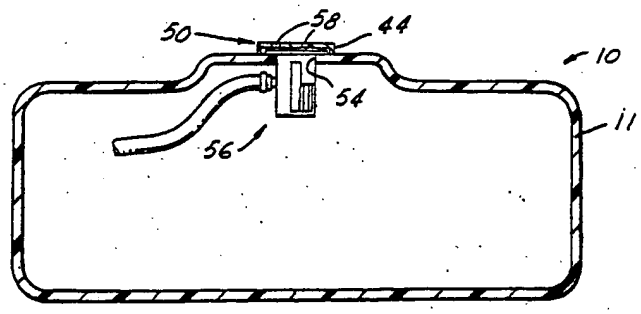

FIG.3

A pressurized fluid such as air is admitted into the parison in the closed mold halves to expand the molten parison within the first cavity to form the entire tank and define the shape of the tank by blow molding.

After molding, the fuel tank body is removed from the die halves, the cap 50 is separated or severed from the flash 36 and after a fuel pump or other component 56 is inserted through the opening 54, the cap 50 is disposed over the opening and heat welded to the outer layer of the wall 11 to permanently close, seal and provide a fuel vapor barrier for the opening.

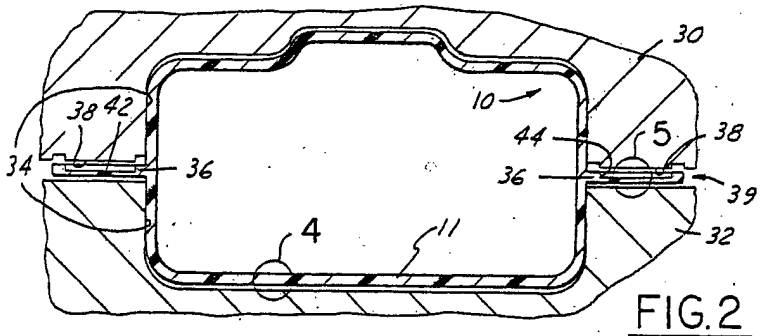

FIG. 2

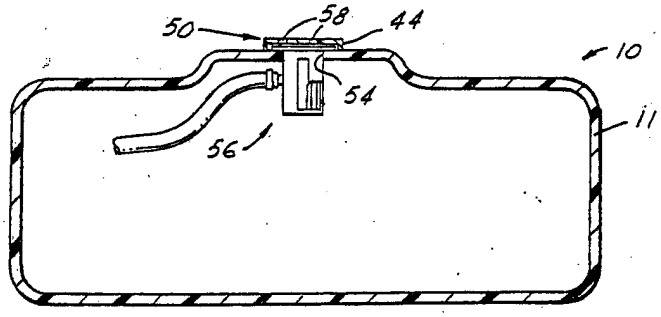

FIG. 3

During manufacture of the tank 10, the cap 50 is sealed over each access opening 54 by heat welding or fusing at least one HDPE layer of the cap to a HDPE layer of the tank wall by hot plate, ultrasonic or other heat welding methods (Application Page 7, last full paragraph). The vapor barrier layer of EVOH will not heat weld or fuse to the HDPE layers and during co-extrusion of the parison is attached throughout its surface area to the inner and outer HDPE layers by adhesive layers 24, 26 (Fig. 4).

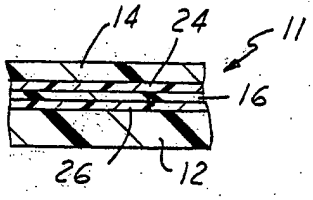

FIG. 4

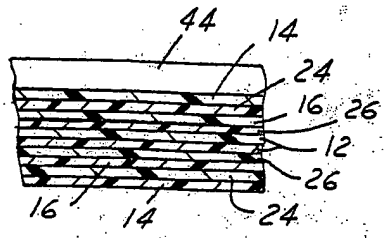

FIG. 5

The EVOH barrier layer 16 material is expensive and has little strength and thus the HDPE layers provide the structural integrity and strength of the plastic fuel tank and cap which is required for passing various crush resistance and vehicle crash specifications in the automotive industry (Application Pages 4-5 bridging paragraph). The EVOH vapor barrier layer comprises about 2% to 5% of the total wall thickness, each adhesive layer about 1% to 4% of the total wall thickness, and each HDPE inner and outer layer comprises 40 to 50% of the total wall thickness. (Application Page 5, first full paragraph)

Preferably, as shown in Fig. 5, each cap 50 has two barrier layers 16 which are produced by portions of the parison sidewall being folded over upon themselves when they are compressed between the die halves as shown in Figs. 2 and 5.

Issue

The sole issue is whether as required by the first paragraph of §112 in view of the application specification and drawings, one skilled in the art would know or understand that in applicant's method of fuel tank manufacture, the cap would be separated from the flash and heat welded to the blow molded fuel tank before filling the container with hydrocarbon fuel such as gasoline and diesel fuel, and thus utilizing the phrase "before filling the container" in each of independent claims 23 and 32 and hence in all of claims 23, 25, 26 and 28-36 does not introduce any new matter. This disputed phrase is one of several distinctions over non-analogous prior art.

More specifically, the Final Rejection in its entirety states:

> Claims 23, 25, 26 and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitations that the cap is separated, disposed over the opening and sealed to the opening prior to filling of the container, is considered new matter and is not supported by the original disclosure.

Independent claims 37, 38 are identical to independent claims 23 and 32 respectively except that they do not contain the disputed phrase "before filling the container" which is the sole basis of the Final Rejection.

Grouping of Claims

Claims 23, 25, 26 and 28-36 stand or fall together and independent claim 23 is representative of this group of claims.

Independent claim 37 stands or falls alone.

Independent claim 38 stands or falls alone.

ARGUMENT

The law applicable to a first paragraph section 112 analysis was clarified and restated by the CAFC in *Vas-Cath, Inc. v. Mahurkar, 935 F2d 1555, 19 USPQ2d 1111, 1114-1117 (CAFC 1991)* which states in part:

> The cases indicate that the "written description" requirement most often comes into play where claims not presented in the application when filed are presented thereafter. Alternatively, patent applicants often seek the benefit of the filing date of an earlier-filed foreign or United States application under 35 USC 119 or 35 USC 120, respectively, for claims of a later-filed application. The question raised by these situations is most often phrased as whether the application provides "adequate support" for the claim(s) at issue; it has also been analyzed in terms of "new matter" under 35 USC 132.***
>
> Since its inception, the Court of Appeals for the Federal Circuit has frequently addressed the "written description" requirement of §112. A fairly uniform standard for determining compliance with the "written description" requirement has been maintained throughout: "Although [the applicant] does not have to describe exactly the subject matter claimed,...the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2D 1614, 1618 (Fed.Cir. 1989)(citations omitted). "[T]he test for sufficiency of support in a parent application is whether the disclosure of the application relied upon' reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.'" *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 7097 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). Our cases also provide that compliance with the "written description" requirement of §112 is a question of fact, to be reviewed under the clearly erroneous standard. *Gosteli*, 872 F.2d at 1012, 10 USPQ2D AT 1618; *Utter v. Hiraga,* 845 F.2d 993, 998, 6 USPQ2D 1709, 1714 (Fed. Cir. 1988).
>
> * * *
>
> This court in *Wilder* (and the CCPA before it) clearly recognized, and we hereby reaffirm, that 35 USC 112, first paragraph, requires "written description of the invention" which is separate and distinct from the enablement requirement. The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must also convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the*

invention. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed.* [Emphasis in original]

Thus, the question is whether the application specification reasonably conveys to one skilled in the art that applicant was in possession of the invention as defined by the claim at issue. Resolving this question requires consideration of both the claim and what would be known to skilled persons in view of their knowledge and skill and the teaching of the application specification at the time it was filed.

Claim 23

Thus, it is necessary to consider claim 23 which provides:

> **23.** A method of forming a fuel container with an opening and a cap sealing the opening, comprising the steps of:
>
> providing a pair of mold halves defining a first mold cavity to form and define the shape of a container from a parison by blow molding and adjacent the first cavity a second cavity to form at least one cap in a flash section from the parison by compression molding;
>
> providing a parison with a hydrocarbon fuel vapor barrier layer of a polymeric material disposed between inner and outer layers of a different polymeric material which is heat weldable;
>
> closing the mold halves together to receive and compress a portion of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the second cavity in the flash section by compression molding;
>
> providing a pressurizing fluid into the parison within the closed mold halves to expand the parison within the first mold cavity to form the entire container and define the shape of the container by blow molding;
>
> forming an opening through the container at a location spaced from the cap;
>
> before filling the container, separating the cap from the flash section;

before filling the container, disposing the cap over the opening; and

before filling the container, heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening. [Emphasis added]

The disputed phrase simply makes clear that the last three steps set forth in claim 23 are performed before the container is filled. This disputed phrase was added as one distinction over non-analogous art in response to a §103 rejection which was withdrawn presumably in view of adding this and three other phrases to original claim 23 of "from a parison", "by blow molding" and "by compression molding".

The Specification and Knowledge of Skilled Persons

The entire Application specification focuses on and discloses a method of manufacturing plastic fuel tanks for automotive vehicles to reduce the amount of hydrocarbon fuel vapor such as gasoline released to the atmosphere when the tank is used in a vehicle and the specific construction and arrangement of the fuel tank produced by this method. The Application on pages 1-4 notes environmental concerns and regulations for emission of hazardous hydrocarbon fuel vapors and emphasizes that the invention is directed to "new technologies for manufacturing plastic fuel tanks", multilayer plastic fuel tanks are "substantially more difficult to manufacture than a single layer plastic fuel tank", "multilayer molded fuel tank 10 is commonly used, for example, in the automotive industry", and "plastic fuel tanks 10 are particularly desirable because of their....ease of manufacturing and low fuel vapor permeation characteristics." Application Pages 4

through 8 set forth in detail the method, suitable mold, multilayer parison, and tank construction.

In short, for present purposes, it is undisputed that each and every element and step of method claim 23 is literally and explicitly set forth and described in detail in the application specification.

However, the application does not literally or specifically state that any of the steps of this manufacturing method are performed before filling the container. Nevertheless, it is submitted that claim 23 complies with the first paragraph of §112 because persons of ordinary skill in the art knew and understood when this application was filed that during manufacture of plastic fuel tanks by extruding or forming and blow molding a parison to form the tank body and thereafter separating and attaching a cap to the tank, the tank was not filled and certainly was not filled with fuel because it would be hazardous and detrimental to manufacture of the fuel tank. Certainly, there is no evidence or any suggestion the tank would be so filled. The Office Actions have not submitted any evidence to support this contention and have not made even a prima facie showing thereof.

To the contrary, it is submitted that when the application was filed, skilled persons knew and understood that during manufacture of a plastic fuel tank including heat welding of the cap to the tank wall, the tank would not be filled and certainly would not be filled with fuel. Therefore, it was not necessary to expressly and explicitly so state in the application specification. Before filing of the application, skilled persons knew that co-extruding layers of plastic to form a parison and blow molding of the parison to form the plastic fuel tank body was carried out at significantly elevated temperatures in

order to make the plastic sufficiently molten or flowable and pliable to accomplish the extrusion of the parison and forming the tank body by a blow molding operation and that such operations are performed without filling the tank body formed by blow molding. Skilled persons also knew that heat welding of two components such as a plastic cap to a plastic fuel tank wall required at least localized heating at the junction between them to a sufficiently high temperature to cause the plastic to flow together into a coherent mass which was subsequently cooled to room temperature. Skilled persons knew that such operations are performed without filling the tank body.

Furthermore, skilled persons knew that prior to completion of these operations, filling the container with any hydrocarbon fuel even if drained before heat welding would be inherently dangerous because of the potential of an explosion of fuel vapors by the heating to elevated temperatures of the plastic material during the heat welding and/or blow molding and/or co-extrusion to form the hollow parison.

Consequently, skilled persons knew that prior to completion of these operations, the tank body or container would not be filled with fuel and indeed would not be filled at all. Before forming these operations, it would not be filled with even non-flammable substances because they would not be needed and would tend to interfere with and be detrimental to the co-extruding, blow molding and heat welding operations all of which must be performed at elevated temperatures sufficient to put the plastic material in a sufficiently molten state so that these operations could be successfully carried out and completed.

Since claim 23 merely makes explicit what is implicitly and inherently disclosed and taught to skilled persons by the original application specification, it fully complies

with the requirements of the first paragraph of §112 and should be allowed. The law is well established that new language, including new claim language, which simply renders explicit what was implicitly disclosed or understood by persons skilled in the art in view of what was explicitly disclosed is not new matter and complies with the first paragraph of §112: *U. S. Pipe & Foundry Co. v. Woodward Iron Co., 327 F.2d 242, 247, 140 USPQ 208, 212 (4TH Cir. 1964); In re Wright, 343 F.2d 761, 767, 145 USPQ 182, 188 (CCPA 1965); Brian Jackson Associates v. San Manuel Copper Corp., 259 F.Supp. 793, 817, 151 USPQ 5, 10 (D.C. Ariz 12966); Canaan Products, Inc. v. Edward Don & Co., 273 F.Supp 492, 500, 154 USPQ 393, 399 (D.C. Ill 1966); and Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, (CAFC 1991).*

Accordingly, adding the disputed phrase "before filling the container" to claim 23 and the remaining Group I claims 25, 26 and 28-36 does not offend and complies with the first paragraph of §112. Accordingly, for at least these reasons, the rejection of these claims should be reversed and these claims allowed.

Claims 37 and 38

Each of independent claims 37 and 38 is identical to corresponding independent claims 23 and 32 respectively, except that the disputed phrase "before filling the container" has been omitted. Since inclusion of this disputed phrase is the sole objection to claims 23 and 32 and the prior art rejection thereof was withdrawn, it is submitted that each of independent claims 37 and 38 should be allowed.

Conclusion

For these reasons, claims 23, 25, 26 and 28-36 comply with the requirements of the first paragraph of §112 and should be allowed and since there are no objections to independent claims 37 and 38, they should also be allowed.

Respectfully submitted,

Reising, Ethington, Barnes, Kisselle, P.C.

WHF:sal

By

Enclosure

Attorneys for Appellant
William H. Francis #25,335
P. O. Box 4390, Troy, Mi 48099-4390
Telephone (248) 689-3500
Facsimile (248) 689-4071

APPENDIX

Claims on Appeal

The following claims 23, 25, 26, 28-36 and 37-38 are on appeal:

Claim 23

A method of forming a fuel container with an opening and a cap sealing the opening, comprising the steps of:

providing a pair of mold halves defining a first mold cavity to form and define the shape of a container from a parison by blow molding and adjacent the first cavity a second cavity to form at least one cap in a flash section from the parison by compression molding;

providing a parison with a hydrocarbon fuel vapor barrier layer of a polymeric material disposed between inner and outer layers of a different polymeric material which is heat weldable;

closing the mold halves together to receive and compress a portion of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the second cavity in the flash section by compression molding;

providing a pressurizing fluid into the parison within the closed mold halves to expand the parison within the first mold cavity to form the entire container and define the shape of the container by blow molding;

forming an opening through the container at a location spaced from the cap;

before filling the container, separating the cap from the flash section;

before filling the container, disposing the cap over the opening; and

before filling the container, heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening.

Claim 25

The method of claim 23 wherein the parison, container and cap have multiple layers of polymeric material including at least one structural layer and at least one vapor barrier layer.

Claim 26

The method of claim 23 which also comprises heat welding at least one of the inner layer and the outer layer of the cap to the outer layer of the container to permanently attach and seal the cap to the container.

Claim 28

The method of claim 23 which further comprises simultaneously extruding the fuel vapor layer and the inner and outer layers into the parison which is received in a generally molten state between the open mold halves in a blow molding machine to form the container and cap.

Claim 29

The method of claim 23 wherein the cap has twice as many vapor barrier layers as the vapor barrier layer(s) of the container.

Claim 30

The method of claim 28 wherein the inner layer and the outer layer of the parison, container and cap are of a high density polyethylene polymer material.

Claim 31

The method of claim 30 wherein layers of high density polyethylene polymer material of the container and the cap are heat welded together to permanently attach and seal the cap to the container.

Claim 32

A method of forming a fuel container with an opening and a cap sealing the opening, comprising the steps of:

providing a pair of mold halves defining a first mold cavity to form and define the shape of a container by blow molding and adjacent the first cavity a second cavity to form at least one cap in a flash section by compression molding;

providing a parison with at least one hydrocarbon fuel vapor barrier layer of a polymeric material disposed between inner and outer layers of a different polymeric material which is heat weldable;

closing the mold halves together to receive and compress in the second cavity two overlapping portions of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the flash section by compression molding with the cap having twice as many vapor barrier layers as the vapor barrier

layer(s) of the container and two adjacent inner layers of the different polymeric material adhered together;

providing a pressurizing fluid into the parison within the closed mold halves to expand the parison within the first mold cavity to form the entire container and define the shape of the container by flow molding;

forming an opening through the container at a location spaced from the cap;

before filling the container, separating the cap from the flash section;

before filling the container, disposing the cap over the opening; and

before filling the container, heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening.

Claim 33

The method of claim 32 which also comprises heat welding at least one of the inner layer and the outer layer of the cap to the outer layer of the container to permanently attach and seal the cap to the container.

Claim 34

The method of claim 32 which further comprises simultaneously extruding the at least one fuel vapor layer and the inner and outer layers into the parison which is received in a generally molten state between the open mold in a blow molding machine to form the container and cap.

Claim 35

The method of claim 32 wherein the inner layer and the outer layer of the parison, container and cap are of a high density polyethylene polymer material.

Claim 36

The method of claim 35 wherein the layers of high density polyethylene polymer material of the container and the cap are heat welded together to permanently attach and seal the cap to the container.

Claim 37

A method of forming a fuel container with an opening and a cap sealing the opening, comprising the steps of:

providing a pair of mold halves defining a first mold cavity to form and define the shape of a container from a parison by blow molding and adjacent the first cavity a second cavity to form at least one cap in a flash section from the parison by compression molding;

providing a parison with a hydrocarbon fuel vapor barrier layer of a polymeric material disposed between inner and outer layers of a different polymeric material which is heat weldable;

closing the mold halves together to receive and compress a portion of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the second cavity in the flash section by compression molding;

providing a pressurizing fluid into the parison within the closed mold halves to expand the parison within the first mold cavity to form the entire container and define the shape of the container by blow molding;

forming an opening through the container at a location spaced from the cap;

separating the cap from the flash section;

disposing the cap over the opening; and

heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening.

Claim 38

A method of forming a fuel container with an opening and a cap sealing the opening, comprising the steps of:

providing a pair of mold halves defining a first mold cavity to form and define the shape of a container by blow molding and adjacent the first cavity a second cavity to form at least one cap in a flash section by compression molding;

providing a parison with at least one hydrocarbon fuel vapor barrier layer of a polymeric material disposed between inner and outer layers of a different polymeric material which is heat weldable;

closing the mold halves together to receive and compress in the second cavity two overlapping portions of the parison between them forming at least one flash section in the region of the second cavity and at least one cap in the flash section by compression molding with the cap having twice as many vapor barrier layers as the vapor barrier

layer(s) of the container and two adjacent inner layers of the different polymeric material adhered together;

providing a pressurizing fluid into the parison within the closed mold halves to expand the parison within the first mold cavity to form the entire container and define the shape of the container by flow molding;

forming an opening through the container at a location spaced from the cap;

separating the cap from the flash section;

disposing the cap over the opening; and

heat welding the cap to the container circumferentially continuously to permanently attach and seal the cap to the container to permanently close, seal and provide a fuel vapor barrier for the opening.